

Title (en)  
PHOTOELECTROCHEMICAL DEVICE AN ELECTRODE

Title (de)  
PHOTOELEKTROCHEMISCHE EINRICHTUNG UND ELEKTRODE

Title (fr)  
DISPOSITIF PHOTOELECTROCHIMIQUE ET ELECTRODE

Publication  
**EP 1639627 A4 20070509 (EN)**

Application  
**EP 04753178 A 20040524**

Priority  
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• US 60850903 A 20030627

Abstract (en)  
[origin: US2004262154A1] In one aspect, the invention provides a photoelectrochemical (PEC) electrode or photoelectrode for use in splitting water by electrolysis. The photoelectrode has an electrically conductive surface in contact with an electrolyte solution. This surface is a doped tin oxide layer, which is in electrical contact with the semiconductor solar cell material of the PEC photoelectrode. In a variation of the present invention, another layer of metal oxide having transparent, anti-reflective, and conductive properties is disposed between the doped tin oxide layer and the semiconductor material.

IPC 8 full level  
**C25B 1/00** (2006.01); **H01G 9/20** (2006.01)

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**C23C 14/08** (2013.01 - KR); **C25B 1/04** (2013.01 - KR); **C25B 1/55** (2021.01 - EP KR US); **C25B 11/04** (2013.01 - KR);  
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**Y02E 60/36** (2013.01 - EP US); **Y02P 20/133** (2015.11 - EP US); **Y02P 70/50** (2015.11 - EP US)

Citation (search report)  
• [X] DATABASE CA [online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; JUERGENS, W. ET AL: "Integrated series connection of amorphous hydrogenated silicon solar cells", XP002425105, retrieved from STN Database accession no. 106:7445  
• [PX] DATABASE CA [online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; KAWASHIMA, TAKUYA ET AL: "New transparent conductive films: FTO coated ITO", XP002425106, retrieved from STN Database accession no. 140:274585 & MATERIALS RESEARCH SOCIETY SYMPOSIUM PROCEEDINGS , 70(MATER. ISSUES AMORPHOUS-SEMICOND. TECHNOL.), 501-9 CODEN: MRSPDH; ISSN: 0272-9172, 1986 & THIN SOLID FILMS , 445(2), 241-244 CODEN: THSFAP; ISSN: 0040-6090, 2003  
• See references of WO 2005006391A2

Designated contracting state (EPC)  
DE FR GB

DOCDB simple family (publication)  
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EP 1639627 A4 20070509; JP 2007525593 A 20070906; JP 4510015 B2 20100721; KR 100815627 B1 20080321; KR 20060058774 A 20060530;  
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**US 60850903 A 20030627**; CN 200480024707 A 20040524; EP 04753178 A 20040524; JP 2006517137 A 20040524;  
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